

## ABSTRACT

1           The present invention provides a method and system for processing an input  
2 seismic record to suppress noise energy, for example multiple energy, and to enhance  
3 signal. A primary signal component is determined from an input seismic record. A  
4 residual record is obtained from the input seismic record and the determined primary  
5 component record, for example, by determining a difference of the two records. A next  
6 primary signal component record is then obtained from the residual record. The primary  
7 component record and the next primary component record are combined to form a  
8 reconstructed record. A subsequent residual record may then be obtained and further  
9 primary signal components extracted.